

STIC-ILL

1/10/10

From: Roark, Jessica
Sent: Friday, January 10, 2003 12:20 PM
To: STIC-ILL
Subject: OX-2

427198

STIC,

Please provide the following to

Jessica Roark,
9E12 mailbox, CM1

1. Gorczynski RM. Arch Immunol Ther Exp (Warsz). 2001;49(4):303-9. Review.
PMID: 11726033 [PubMed - indexed for MEDLINE]
2. Clark DA. Semin Immunol. 2001 Aug;13(4):255-63. Review.
PMID: 11437633 [PubMed - indexed for MEDLINE]
3. Nathan C. Nat Immunol. 2001 Jan;2(1):17-9. No abstract available.
PMID: 11135572 [PubMed - indexed for MEDLINE]

Thanks!

Jessica H. Roark

CM1 8A03
Mailbox 9E12
Art Unit 1644
703 605-1209

9264788

WEST Search History

DATE: Friday, January 10, 2003

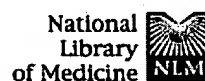
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L4	L1 and @PD<19971107	41	L4
L3	L2 and @PD<19971107	24	L3
L2	L1 and @RLAD<19971107	47	L2
L1	OX-2 or MRC-OX-2 or CD200 or MOX1 or OX-2R	119	L1

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- ☐ 1: [Gorczynski RM, Hu J, Chen Z, Kai Y, Lei J.](#) [Related Articles, Links](#)
A CD200FC immunoadhesin prolongs rat islet xenograft survival in mice.
Transplantation. 2002 Jun 27;73(12):1948-53.
PMID: 12131694 [PubMed - indexed for MEDLINE]

- ☐ 2: [Gorczynski RM, Chen Z, Yu K, Hu J.](#) [Related Articles, Links](#)
CD200 immunoadhesin suppresses collagen-induced arthritis in mice.
Clin Immunol. 2001 Dec;101(3):328-34.
PMID: 11726225 [PubMed - indexed for MEDLINE]

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- ☐ 3: [Gorczynski RM.](#) [Related Articles, Links](#)
Evidence for an immunoregulatory role of OX2 with its counter ligand (OX2L) in the regulation of transplant rejection, fetal loss, autoimmunity and tumor growth.
Arch Immunol Ther Exp (Warsz). 2001;49(4):303-9. Review.
PMID: 11726033 [PubMed - indexed for MEDLINE]

- ☐ 4: [Gorczynski RM, Chen Z, Hu J, Kai Y, Lei J.](#) [Related Articles, Links](#)
Evidence of a role for CD200 in regulation of immune rejection of leukaemic tumour cells in C57BL/6 mice.
Clin Exp Immunol. 2001 Nov;126(2):220-9.
PMID: 11703364 [PubMed - indexed for MEDLINE]

- ☐ 5: [Clark DA, Yu G, Levy GA, Gorczynski RM.](#) [Related Articles, Links](#)
Procoagulants in fetus rejection: the role of the OX-2 (CD200) tolerance signal.
Semin Immunol. 2001 Aug;13(4):255-63. Review.
PMID: 11437633 [PubMed - indexed for MEDLINE]

- ☐ 6: [Gorczynski RM, Chen Z, Lee L, Yu K, Hu J.](#) [Related Articles, Links](#)
Anti-CD200R ameliorates collagen-induced arthritis in mice.
Clin Immunol. 2002 Sep;104(3):256-64.
PMID: 12217336 [PubMed - indexed for MEDLINE]

- ☐ 7: [Nathan C, Muller WA.](#) [Related Articles, Links](#)
Putting the brakes on innate immunity: a regulatory role for CD200?
Nat Immunol. 2001 Jan;2(1):17-9. No abstract available.
PMID: 11135572 [PubMed - indexed for MEDLINE]

- ☐ 8: [Wright GJ, Jones M, Puklavec MJ, Brown MH, Barclay AN.](#) [Related Articles, Links](#)
The unusual distribution of the neuronal/lymphoid cell surface CD200 (OX2) glycoprotein is conserved in humans.
Immunology. 2001 Feb;102(2):173-9.
PMID: 11260322 [PubMed - indexed for MEDLINE]
- ☐ 9: [Dick AD, Broderick C, Forrester JV, Wright GJ.](#) [Related Articles, Links](#)
Distribution of OX2 antigen and OX2 receptor within retina.
Invest Ophthalmol Vis Sci. 2001 Jan;42(1):170-6.
PMID: 11133863 [PubMed - indexed for MEDLINE]
- ☐ 10: [Hoek RM, Ruuls SR, Murphy CA, Wright GJ, Goddard R, Zurawski SM, Blom B, Homola ME, Streit WJ, Brown MH, Barclay AN, Sedgwick JD.](#) [Related Articles, Links](#)
Down-regulation of the macrophage lineage through interaction with OX2 (CD200).
Science. 2000 Dec 1;290(5497):1768-71.
PMID: 11099416 [PubMed - indexed for MEDLINE]
- ☐ 11: [Gorczynski RM, Yu K, Clark D.](#) [Related Articles, Links](#)
Receptor engagement on cells expressing a ligand for the tolerance-inducing molecule OX2 induces an immunoregulatory population that inhibits alloreactivity in vitro and in vivo.
J Immunol. 2000 Nov 1;165(9):4854-60.
PMID: 11046009 [PubMed - indexed for MEDLINE]
- ☐ 12: [Gorczynski RM, Bransom J, Cattral M, Huang X, Lei J, Xiaorong L, Min WP, Wan Y, Gauldie J.](#) [Related Articles, Links](#)
Synergy in induction of increased renal allograft survival after portal vein infusion of dendritic cells transduced to express TGFbeta and IL-10, along with administration of CHO cells expressing the regulatory molecule OX-2.
Clin Immunol. 2000 Jun;95(3):182-9.
PMID: 10866124 [PubMed - indexed for MEDLINE]
- ☐ 13: [Ragheb R, Abrahams S, Beecroft R, Hu J, Ni J, Ramakrishna V, Yu G, Gorczynski RM.](#) [Related Articles, Links](#)
Preparation and functional properties of monoclonal antibodies to human, mouse and rat OX-2.
Immunol Lett. 1999 Jun 1;68(2-3):311-5.
PMID: 10424437 [PubMed - indexed for MEDLINE]
- ☐ 14: [Gorczynski RM, Cattral MS, Chen Z, Hu J, Lei J, Min WP, Yu G, Ni J.](#) [Related Articles, Links](#)
An immunoadhesin incorporating the molecule OX-2 is a potent immunosuppressant that prolongs allo- and xenograft survival.
J Immunol. 1999 Aug 1;163(3):1654-60.
PMID: 10415071 [PubMed - indexed for MEDLINE]
- ☐ 15: [Gorczynski RM, Cohen Z, Fu XM, Lei J.](#) [Related Articles, Links](#)
Anti-rat OX-2 blocks increased small intestinal transplant survival after portal vein immunization.
Transplant Proc. 1999 Feb-Mar;31(1-2):577-8. No abstract available.
PMID: 10083244 [PubMed - indexed for MEDLINE]

- ☐ 16: [Gorczynski L, Chen Z, Hu J, Kai Y, Lei J, Ramakrishna V, Gorczynski RM.](#) Related Articles, Links
Evidence that an OX-2-positive cell can inhibit the stimulation of type 1 cytokine production by bone marrow-derived B7-1 (and B7-2)-positive dendritic cells.
J Immunol. 1999 Jan 15;162(2):774-81.
PMID: 9916698 [PubMed - indexed for MEDLINE]
- ☐ 17: [Gorczynski RM, Chen Z, Fu XM, Zeng H.](#) Related Articles, Links
Increased expression of the novel molecule OX-2 is involved in prolongation of murine renal allograft survival.
Transplantation. 1998 Apr 27;65(8):1106-14.
PMID: 9583873 [PubMed - indexed for MEDLINE]
- ☐ 18: [Chen Z, Zeng H, Gorczynski RM.](#) Related Articles, Links
Cloning and characterization of the murine homologue of the rat/human MRC OX-2 gene.
Biochim Biophys Acta. 1997 Nov 28;1362(1):6-10.
PMID: 9434094 [PubMed - indexed for MEDLINE]
- ☐ 19: [Preston S, Wright GJ, Starr K, Barclay AN, Brown MH.](#) Related Articles, Links
The leukocyte/neuron cell surface antigen OX2 binds to a ligand on macrophages.
Eur J Immunol. 1997 Aug;27(8):1911-8.
PMID: 9295026 [PubMed - indexed for MEDLINE]
- ☐ 20: [Borriello F, Lederer J, Scott S, Sharpe AH.](#) Related Articles, Links
MRC OX-2 defines a novel T cell costimulatory pathway.
J Immunol. 1997 May 15;158(10):4548-54.
PMID: 9144466 [PubMed - indexed for MEDLINE]

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☐ **21:** McCaughan GW, Clark MJ, Barclay AN.

[Related Articles, Links](#)

Characterization of the human homolog of the rat MRC OX-2 membrane glycoprotein.

Immunogenetics. 1987;25(5):329-35.

PMID: 3032785 [PubMed - indexed for MEDLINE]

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☐ **22:** Gorczynski RM.

[Related Articles, Links](#)

Transplant tolerance modifying antibody to CD200 receptor, but not CD200, alters cytokine production profile from stimulated macrophages.

Eur J Immunol. 2001 Aug;31(8):2331-7.

PMID: 11477545 [PubMed - indexed for MEDLINE]

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FILE 'MEDLINE, CAPLUS, EMBASE, BIOSIS' ENTERED AT 13:05:32 ON 10 JAN 2003

L1	1317 S OX-2 OR MRC-OX-2 OR CD200 OR OX-2R OR OX2
L2	940 DUP REM L1 (377 DUPLICATES REMOVED)
L3	95 S L2 AND (DENDRITIC OR MACROPHAGE OR LYMPHOCYTE OR MONOCYTE)
L4	64 S L3 AND PY>1994

L4 ANSWER 1 OF 64 MEDLINE
 ACCESSION NUMBER: 2002653670 MEDLINE
 DOCUMENT NUMBER: 22300967 PubMed ID: 12414514
 TITLE: Constitutive retinal **CD200** expression regulates resident microglia and activation state of inflammatory cells during experimental autoimmune uveoretinitis.
 AUTHOR: Broderick Cathryn; Hoek Robert M; Forrester John V; Liversidge Janet; Sedgwick Jonathon D; Dick Andrew D
 CORPORATE SOURCE: Department of Ophthalmology, University of Aberdeen, United Kingdom.
 SOURCE: AMERICAN JOURNAL OF PATHOLOGY, (2002 Nov) 161 (5) 1669-77.
 Journal code: 0370502. ISSN: 0002-9440.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
 ENTRY MONTH: 200211
 ENTRY DATE: Entered STN: 20021105
 Last Updated on STN: 20021211
 Entered Medline: 20021122

AB Recent evidence supports the notion that tissue **OX2** (**CD200**) constitutively provides down-regulatory signals to myeloid-lineage cells via **CD200**-receptor (**CD200R**). Thus, mice lacking **CD200** (**CD200**(-/-)) show increased susceptibility to and accelerated onset of tissue-specific autoimmunity. In the retina there is extensive expression of **CD200** on neurons and retinal vascular endothelium. We show here that retinal microglia in **CD200**(-/-) mice display normal morphology, but unlike microglia from wild-type **CD200**(+/+) mice are present in increased numbers and most significantly, express inducible nitric oxide synthase (**NOS2**), a **macrophage** activation marker. Onset and severity of uveitogenic peptide (1-20) of interphotoreceptor retinoid-binding protein-induced experimental autoimmune uveoretinitis is accelerated in **CD200**(-/-) mice and although tissue destruction appears no greater than seen in **CD200**(+/+) mice, there is continued increased ganglion and photoreceptor cell apoptosis. Myeloid cell infiltrate was increased in **CD200**(-/-) mice during experimental autoimmune uveoretinitis, although **NOS2** expression was not heightened. The results indicate that the **CD200**:**CD200R** axis regulates retinal microglial activation. In **CD200**(-/-) mice the release of suppression of tonic **macrophage** activation, supported by increased **NOS2** expression in the **CD200**(-/-) steady state accelerates disease onset but without any demonstration of increased target organ/tissue destruction.

L4 ANSWER 2 OF 64 MEDLINE
 ACCESSION NUMBER: 2002627387 MEDLINE
 DOCUMENT NUMBER: 22206107 PubMed ID: 12217336
 TITLE: Anti-**CD200R** ameliorates collagen-induced arthritis in mice.
 AUTHOR: Gorczynski Reginald M; Chen Zhiqi; Lee Lydia; Yu Kai; Hu Jiang
 CORPORATE SOURCE: Transplant Research Division, The Toronto Hospital, 200 Elizabeth Street, Toronto, Ontario, M5G2C4, Canada.
 SOURCE: CLINICAL IMMUNOLOGY, (2002 Sep) 104 (3) 256-64.
 Journal code: 100883537. ISSN: 1521-6616.
 PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200211
ENTRY DATE: Entered STN: 20021019
Last Updated on STN: 20021213
Entered Medline: 20021104

AB Immunization of DBA/1 with 100 microg bovine collagen type II emulsified in Freund's adjuvant, followed by booster injection in incomplete adjuvant

at 18 days, leads to development of arthritis in more than 70% of mice by 28 days postinjection. We have previously shown that the novel immunosuppressant molecule CD200Fc (linking an extracellular domain of CD200 with a murine IgG2a Fc region) can suppress induction of disease when given to mice from the time of collagen injection. This occurs in concert with a decrease in the serum levels of anti-collagen

IgG

(approximately 50% reduction), with relatively more IgG2b and IgG3, decreased serum levels of TNFalpha and IFN-gamma, and decreased

production

of those same cytokines after restimulation of lymphocytes in vitro with collagen. Since CD200 induces suppression following engagement of a receptor (CD200R), known to be expressed on, among other cells, macrophages, we investigated whether infusion of anti-CD200R and/or CD200Fc would ameliorate established disease in DBA mice, when injections were begun following collagen immunization. Our

data

indicate an arrest of disease following either treatment, with modification of a number of immune parameters (serum and lymphocyte cytokine production) consistent with a general role for CD200:CD200R interactions in the regulation of induction and/or expression of autoimmune disorders. When a higher dose (250 microg/mouse) of anti-CD200R was infused into a group of overtly arthritic mice, a significant (approximately 50%) decrease in arthritic joint score occurred over the 4-week treatment period.

L4 ANSWER 3 OF 64 MEDLINE

ACCESSION NUMBER: 2002487254 IN-PROCESS

DOCUMENT NUMBER: 22234700 PubMed ID: 12322892

TITLE: The same immunoregulatory molecules contribute to successful pregnancy and transplantation.

AUTHOR: Gorczynski Reginald M; Hadidi Sima; Yu Gary; Clark David A

CORPORATE SOURCE: Transplant Research Division, The Toronto Hospital, Ontario, Canada.. rgorczynski@uhnres.utoronto.ca

SOURCE: AMERICAN JOURNAL OF REPRODUCTIVE IMMUNOLOGY, (2002 Jul) 48 (1) 18-26.

Journal code: 8912860. ISSN: 1046-7408.

PUB. COUNTRY: Denmark

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: IN-PROCESS; NONINDEXED; Priority Journals

ENTRY DATE: Entered STN: 20020927

Last Updated on STN: 20021213

AB PROBLEM: At least two dendritic cell-associated molecules have been shown to contribute to the successful outcome of organ and tissue allografts in mice, namely CD200 and MD-1. CD200 is up-regulated in rodent transplantation models where successful inhibition of rejection is accomplished, and is believed to signal immunosuppression following engagement of a receptor, CD200R, on macrophages and/or gammadelta T-cell receptor (gammadelta TCR+ cells MD-1 is

implicated in controlling expression of costimulatory molecules including CD80/CD86 which induce an immunorejection response, and thus inhibition of

MD-1 expression also facilitates increased graft survival MD-1 also stabilizes expression of CD14, part of the receptor complex for LPS. As well as the inhibition of rejection which follows blockade of MD-1 expression and/or augmentation of CD200 expression, an altered polarization in cytokine production is seen, with increased expression of interleukin-4 (IL-4), IL-10 and transforming growth factor-beta (TGF-beta), and decreased IL-2, interferon-gamma (IFN-gamma) and tumor necrosis factor-alpha (TNF-alpha). Successful pregnancy in allopregnant mice also depends upon control of graft rejection mechanisms. Proinflammatory T-helper 1 (Th1) cytokines (TNF-alpha + IFN-gamma + IL-1) have been shown to cause spontaneous abortion in mice by activating a novel prothrombinase, fibrinogen-like peptide (fibrinoleukin) fgl2, which may promote fibrin deposition in the graft rejection process; expression of IL-10, TGF-beta, and progesterone-induced blocking factor (PIBF) in contrast leads to lowering of abortion rates. Interestingly, the spontaneous abortion rates in abortion-prone CBA x DBA/2 matings and in the low abortion rate CBA x BALB/c matings were lower than the frequency of implantation sites showing fibrin(hi) + fgl2 (mRNA)hi, implying regulation of the pro-abortion consequences of fgl2 expression. METHODS: We have investigated, by in situ hybridization, CD200, MD-1 and fgl2 expression in implantation sites in different strains of mice, and studied the effects of anti-MD-1, anti-CD200 and CD200Fc immunoadhesin on fetal and allograft survival. The role of indoleamine dioxygenase (IDO) was evaluated. RESULTS: CD200 mRNA expression occurred in the same sites as fgl2 mRNA. Anti-CD200 antibody raised the abortion rate to predicted levels, and infusion of a CD200 immunoadhesin reduced the abortion rate, as did an anti-MD-1 antibody. The latter also improved organ and tissue graft survival. Suppression by antigen-presenting **macrophages** triggered by CD200 is dependent upon intact IDO activity. CONCLUSION: Regulation of CD200 and MD-1 expression may control both pregnancy and allograft survival.

L4 ANSWER 4 OF 64 MEDLINE
ACCESSION NUMBER: 2002383669 MEDLINE
DOCUMENT NUMBER: 22127239 PubMed ID: 12131694
TITLE: A CD200Fc immunoadhesin prolongs rat islet xenograft survival in mice.
AUTHOR: Gorczynski R M; Hu J; Chen Z; Kai Y; Lei J
CORPORATE SOURCE: The Toronto Hospital, University Health Network and Department of Surgery, University of Toronto, Toronto, Canada M5G2C4.
SOURCE: TRANSPLANTATION, (2002 Jun 27) 73 (12) 1948-53.
Journal code: 0132144. ISSN: 0041-1337.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200207
ENTRY DATE: Entered STN: 20020723
Last Updated on STN: 20020801
Entered Medline: 20020731
AB BACKGROUND: A solubilized form of the CD200 molecule, CD200Fc, has been shown to suppress allograft rejection and development of collagen-induced arthritis in mice. We investigated whether the same molecule could prolong survival of rat islet xenografts. METHODS: Streptozocin-treated mice, receiving injections with anti-asialo-GM1

antibody, received rat islets (approximately 400/mouse) under the kidney capsule or injected into the portal vein, along with rapamycin treatment. Thereafter mice received injections of CD200Fc (10 microg/mouse/injection) or control mouse IgG2. Blood glucose was monitored daily. Some mice received additional injections of anti-CD200/-CD200R monoclonal antibodies. RESULTS: Portal vein delivery of islets led to more extended resolution of diabetes than did transplantation under the kidney capsule. CD200Fc further prolonged survival in either case, an effect abolished by anti-CD200 or F(ab')2 anti-CD200R mAbs, but not by whole anti-CD200R (anti-CD200R Ig). Spleen cells taken from CD200Fc-treated mice showed polarization to type-2 cytokine production (interleukin-4, interleukin-10) on restimulation with rat splenocytes in culture, in comparison to cells from control mice (type-1 cytokines, interleukin-2, interferon-gamma). CONCLUSION: CD200:CD200R interactions are important in regulating rat islet xenograft survival.

L4 ANSWER 5 OF 64 MEDLINE
 ACCESSION NUMBER: 2002328639 MEDLINE
 DOCUMENT NUMBER: 22068374 PubMed ID: 12072366
 TITLE: CD200 and membrane protein interactions in the control of myeloid cells.
 AUTHOR: Barclay A Neil; Wright Gavin J; Brooke Gary; Brown Marion H
 CORPORATE SOURCE: Sir William Dunn School of Pathology, University of Oxford,
 OX1 3RE, Oxford, UK.. barclay@molbiol.ox.ac.uk
 SOURCE: Trends Immunol, (2002 Jun) 23 (6) 285-90. Ref: 59
 Journal code: 100966032. ISSN: 1471-4906.
 PUB. COUNTRY: England; United Kingdom
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 General Review; (REVIEW)
 (REVIEW, TUTORIAL)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 200208
 ENTRY DATE: Entered STN: 20020620
 Last Updated on STN: 20020820
 Entered Medline: 20020819

AB OX2 (now designated CD200) is a membrane protein expressed by a broad range of cell types. It is the ligand for a receptor restricted to myeloid cells, with the potential to deliver inhibitory signals. This is indicated by the CD200-deficient mouse model, in which myeloid cells are more activated when stimulated immunologically than cells from normal mice. The unusual tissue distribution of CD200 indicates where myeloid cells can be restrictively controlled through cell-cell contact. Recent data on CD200 will be reviewed in the context of other proteins that might have similar roles, in particular, the interaction between CD47 and SIRPalpha (CD172a).

L4 ANSWER 8 OF 64 MEDLINE
 ACCESSION NUMBER: 2002046490 MEDLINE
 DOCUMENT NUMBER: 21583292 PubMed ID: 11726225
 TITLE: CD200 immunoadhesin suppresses collagen-induced arthritis in mice.
 AUTHOR: Gorczynski R M; Chen Z; Yu K; Hu J
 CORPORATE SOURCE: Transplant Research Division, The Toronto Hospital, 200

SOURCE: Elizabeth Street, Toronto, Ontario, M5G2C4, Canada.
 CLINICAL IMMUNOLOGY, (2001 Dec) 101 (3) 328-34.
 Journal code: 100883537. ISSN: 1521-6616.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 200201
 ENTRY DATE: Entered STN: 20020124
 Last Updated on STN: 20020125
 Entered Medline: 20020110

AB DBA/1 mice immunized with 100 microg bovine collagen type II emulsified
 in
 at Freund's adjuvant, followed by booster injection in incomplete adjuvant
 18 days, develop profound arthritis (>50% of animals) by 30 days
 postinjection. The molecule CD200 (previously called OX2
), associated with, among others, follicular dendritic cells, is
 implicated in delivery of immunosuppressive signals to the immune system,
 and an immunoadhesin in which the extracellular domains of CD200
 were linked to a mouse IgG2a Fc region has been shown to promote renal
 allograft survival. DBA/1 mice receiving 15 microg/mouse CD200Fc at 3-day
 intervals following immunization with collagen did not develop arthritis
 in this model. Lymphocytes taken from CD200Fc-treated,
 collagen-immunized mice produced significantly lower levels of TNFalpha
 and IFN-gamma in culture supernatants after restimulation in vitro with
 collagen, in contrast to cells taken from control mice treated with PBS
 or
 normal mouse Ig. Serum from CD200Fc-treated mice contained less
 anti-collagen IgG (approximately 50% reduction), with relatively more
 IgG2b and IgG3, and lower levels of TNFalpha and IFN-gamma, than control
 mice. These data indicate that this immunoadhesin may have a potent role
 to play in the regulation of autoimmune disorders.
 (c)2001 Elsevier Science.

L4 ANSWER 9 OF 64 MEDLINE
 ACCESSION NUMBER: 2001679815 MEDLINE
 DOCUMENT NUMBER: 21582469 PubMed ID: 11726033
 TITLE: Evidence for an immunoregulatory role of OX2 with
 its counter ligand (OX2L) in the regulation of transplant
 rejection, fetal loss, autoimmunity and tumor growth.
 AUTHOR: Gorczynski R M
 CORPORATE SOURCE: The Toronto Hospital, University Health Network, Ontario,
 Canada.. rgorczynski@transplantunit.org
 SOURCE: ARCHIVUM IMMUNOLOGIAE ET THERAPIAE EXPERIMENTALIS,
 (2001) 49 (4) 303-9. Ref: 63
 Journal code: 0114365. ISSN: 0004-069X.
 PUB. COUNTRY: Poland
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 General Review; (REVIEW)
 (REVIEW, TUTORIAL)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 200205
 ENTRY DATE: Entered STN: 20011203
 Last Updated on STN: 20020529
 Entered Medline: 20020528

AB Transplantation has emerged as an effective treatment for patients with
 end-stage organ failure. Current regimens of non-specific
 immunosuppressive drug treatment, which are needed life-long to prevent

graft rejection, have numerous adverse side effects and increase the risk of opportunistic infections and malignancy. A major goal is to develop immunotherapeutic protocols that achieve specific tolerance. Such protocols would decrease and eventually eliminate the reliance on non-specific drug therapy. We showed that portal vein delivery of donor antigen prolongs the survival of vascularized and non-vascularized allo- and xeno-grafts, and that increased graft survival is associated with altered cytokine production and augmented expression of the molecule **OX2**. This review documents further evidence for a more general immunoregulatory role for the interactions of **OX2** and its ligand, **OX2L**.

L4 ANSWER 10 OF 64 MEDLINE
 ACCESSION NUMBER: 2001650119 MEDLINE
 DOCUMENT NUMBER: 21560360 PubMed ID: 11703364
 TITLE: Evidence of a role for **CD200** in regulation of immune rejection of leukaemic tumour cells in C57BL/6 mice.
 AUTHOR: Gorczynski R M; Chen Z; Hu J; Kai Y; Lei J
 CORPORATE SOURCE: Department of Surgery and Immunology, University of Toronto, Toronto, Canada.. rgorczynski@transplantunit.org
 SOURCE: CLINICAL AND EXPERIMENTAL IMMUNOLOGY, (2001 Nov) 126 (2) 220-9.
 Journal code: 0057202. ISSN: 0009-9104.
 PUB. COUNTRY: England: United Kingdom
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 200112
 ENTRY DATE: Entered STN: 20011113
 Last Updated on STN: 20020123
 Entered Medline: 20011207

AB Increased expression of the molecule **CD200** in mice receiving renal allografts is associated with immunosuppression leading to increased graft survival, and altered cytokine production in **lymphocytes** harvested from the transplanted animals. Preferential production of IL-4, IL-10 and TGFbeta occurs on donor-specific restimulation in vitro, with decreased production of IL-2, IFNgamma and TNFalpha. These effects are enhanced by simultaneous infusion of **CD200** immunoadhesin (CD200Fc) and donor **CD200** receptor (CD200r) bearing **macrophages** to transplanted mice. C57BL/6 mice do not normally resist growth of EL4 or C1498 leukaemia tumour cells. Following transplantation of cyclophosphamide-treated C57BL/6 with T-depleted C3H bone marrow cells, or for the EL4 tumour, immunization of C57BL/6 mice with tumour cells transfected with a vector encoding the co-stimulatory molecule **CD80** (EL4-CD80), mice resist growth of tumour challenge. Immunization of C57BL/6 mice with EL4 cells overexpressing **CD86** (EL4-CD86) is ineffective. Protection from tumour growth in either model is suppressed by infusion of CD200Fc, an effect enhanced by co-infusion of CD200r+ **macrophages**. CD200Fc acts on both CD4+ and CD8+ cells to produce this suppression. These data are consistent with the hypothesis that immunosuppression following **CD200**-CD200r interaction can regulate a functionally important tumour growth inhibition response in mice.

L4 ANSWER 12 OF 64 MEDLINE
 ACCESSION NUMBER: 2001429379 MEDLINE
 DOCUMENT NUMBER: 21369585 PubMed ID: 11477545

TITLE: Transplant tolerance modifying antibody to **CD200** receptor, but not **CD200**, alters cytokine production profile from stimulated **macrophages**.
 AUTHOR: Gorczynski R M
 CORPORATE SOURCE: CCRW 2-855, The Toronto Hospital, University Health Network, Toronto, Ontario, Canada.
 SOURCE: EUROPEAN JOURNAL OF IMMUNOLOGY, (2001 Aug) 31 (8) 2331-7.
 Journal code: 1273201. ISSN: 0014-2980.
 PUB. COUNTRY: Germany: Germany, Federal Republic of
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 200109
 ENTRY DATE: Entered STN: 20010917
 Last Updated on STN: 20010917
 Entered Medline: 20010913

AB Increased C57BL/6 allograft survival following donor-specific **dendritic** cell (DC) portal vein (pv) pre-transplant immunization of C3H mice is associated with increased expression of the molecule **CD200** on DC, delivery of suppressive signals by **CD200** (r+) **macrophages**, and polarization in cytokine production towards type-2 cytokines. Infusion of anti-mouse **CD200** monoclonal antibody abolishes these effects. We have used whole Ig, and F(ab')(2) fragments, of anti-**CD200** and anti-**CD200**(r) mAb to explore the relative signaling role of **CD200**(+) versus **CD200**(r+) cells in suppression of type-1 cytokine production in mixed leukocyte cultures (MLC), and enhanced graft survival in vivo. Simple neutralization of **CD200** [even by F(ab')(2) antibody] reversed **CD200**-mediated suppression. However, only whole anti-**CD200**(r) antibody was effective in stimulating suppression from **CD200**(r+) cells. Suppression of cytokine induction following cross-linking of **CD200**(r+) cells in vitro was attenuated by anti-IL-6 mAb. Our data are consistent with the hypothesis that **CD200**(r) itself delivers the crucial intracellular signal leading to immunosuppression, a feature likely of importance in autoimmunity and transplantation.

L4 ANSWER 15 OF 64 MEDLINE
 ACCESSION NUMBER: 2001175102 MEDLINE
 DOCUMENT NUMBER: 21170160 PubMed ID: 11135572
 TITLE: Putting the brakes on innate immunity: a regulatory role for **CD200**?.
 AUTHOR: Nathan C; Muller W A
 SOURCE: Nat Immunol, (2001 Jan) 2 (1) 17-9.
 Journal code: 100941354. ISSN: 1529-2908.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: News Announcement
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 200104
 ENTRY DATE: Entered STN: 20010417
 Last Updated on STN: 20010417
 Entered Medline: 20010412

L4 ANSWER 16 OF 64 MEDLINE
 ACCESSION NUMBER: 2001168977 MEDLINE
 DOCUMENT NUMBER: 21168966 PubMed ID: 11267422
 TITLE: **Dendritic** cells expressing TGFbeta/IL-10, and CHO cells with **OX-2**, increase graft

survival.

AUTHOR: Gorczynski R; Bransom J; Cattral M; Huang X; Lei J; Min W; Wan Y; Gauldie J

CORPORATE SOURCE: University Health Network, Toronto, ON, Canada.

SOURCE: TRANSPLANTATION PROCEEDINGS, (2001 Feb-Mar) 33 (1-2) 1565-6.

Journal code: 0243532. ISSN: 0041-1345.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 200106

ENTRY DATE: Entered STN: 20010702
Last Updated on STN: 20010702
Entered Medline: 20010628

L4 ANSWER 17 OF 64 MEDLINE

ACCESSION NUMBER: 2001064470 MEDLINE

DOCUMENT NUMBER: 20553647 PubMed ID: 11099416

TITLE: Down-regulation of the **macrophage** lineage through interaction with **OX2** (**CD200**).

AUTHOR: Hoek R M; Ruuls S R; Murphy C A; Wright G J; Goddard R; Zurawski S M; Blom B; Homola M E; Streit W J; Brown M H; Barclay A N; Sedgwick J D

CORPORATE SOURCE: DNAX Research Institute of Molecular and Cellular Biology, 901 California Avenue, Palo Alto, CA 94304, USA.

SOURCE: SCIENCE, (2000 Dec 1) 290 (5497) 1768-71.

Journal code: 0404511. ISSN: 0036-8075.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 200012

ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001222

AB **OX2** (**CD200**) is a broadly expressed membrane glycoprotein, shown here to be important for regulation of the **macrophage** lineage. In mice lacking **CD200**, **macrophage** lineage cells, including brain microglia, exhibited an activated phenotype and were more numerous. Upon facial nerve transection, damaged **CD200**-deficient neurons elicited an accelerated microglial response. Lack of **CD200** resulted in a more rapid onset of experimental autoimmune encephalomyelitis (EAE). Outside the brain, disruption of **CD200**-**CD200** receptor interaction precipitated susceptibility to collagen-induced arthritis (CIA) in mice normally resistant to this disease. Thus, in diverse tissues **OX2** delivers an inhibitory signal for the **macrophage** lineage.

L4 ANSWER 18 OF 64 MEDLINE

ACCESSION NUMBER: 2001033110 MEDLINE

DOCUMENT NUMBER: 20501084 PubMed ID: 11046009

TITLE: Receptor engagement on cells expressing a ligand for the tolerance-inducing molecule **OX2** induces an immunoregulatory population that inhibits alloreactivity in vitro and in vivo.

AUTHOR: Gorczynski R M; Yu K; Clark D

CORPORATE SOURCE: University Health Network, Toronto, Canada.

SOURCE: JOURNAL OF IMMUNOLOGY, (2000 Nov 1) 165 (9)
4854-60.

Journal code: 2985117R. ISSN: 0022-1767.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals

ENTRY MONTH: 200011

ENTRY DATE: Entered STN: 20010322

Last Updated on STN: 20010322

Entered Medline: 20001130

AB Increased survival of C57BL/6 renal allografts following portal vein donor-specific pretransplant immunization of C3H mice is associated with increased expression of the molecule **OX2** seen on host **dendritic** cells, along with a marked polarization in cytokine production from **lymphocytes** harvested from the transplanted animals, with preferential production of IL-4, IL-10, and TGF-beta on donor-specific restimulation in vitro, and decreased production of IL-2, IFN-gamma, and TNF-alpha compared with non-portal vein-immunized control transplanted mice. The increased renal allograft survival and the altered cytokine production are abolished by infusion of anti-mouse **OX2** mAb (3B6). Infusion of a soluble **OX2**:Fc immunoadhesin can itself produce significant prolongation of xeno- and allografts in mice. We have used FITC-conjugated **OX2**:Fc to characterize cells expressing a ligand (**OX2L**) for **OX2**, and provide evidence that subpopulations of LPS-stimulated splenic **macrophages**, Con A-activated splenic T cells, and the majority (>80%) of gammadeltaTCR(+) T cells express this ligand. We show below that F4/80(+), **OX2L**(+) splenic **macrophages**, admixed with **OX2**:Fc, represent a potent immunosuppressive population capable of causing more profound inhibition of alloreactivity in vitro or in vivo than that seen using either **OX2**:Fc or **OX2**(+) (or **OX2L**(+)) cells alone. Immunoregulation by this **OX2L**(+) population occurs in an MHC-restricted fashion.

L4 ANSWER 20 OF 64 MEDLINE

ACCESSION NUMBER: 2000455726 MEDLINE

DOCUMENT NUMBER: 20434845 PubMed ID: 10981966

TITLE: Lymphoid/neuronal cell surface **OX2** glycoprotein recognizes a novel receptor on **macrophages** implicated in the control of their function.

AUTHOR: Wright G J; Puklavec M J; Willis A C; Hoek R M; Sedgwick J D; Brown M H; Barclay A N

CORPORATE SOURCE: Sir William Dunn School of Pathology, University of Oxford,

United Kingdom.

SOURCE: IMMUNITY, (2000 Aug) 13 (2) 233-42.

Journal code: 9432918. ISSN: 1074-7613.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

OTHER SOURCE: GENBANK-AF231392; GENBANK-AF231393

ENTRY MONTH: 200009

ENTRY DATE: Entered STN: 20001005

Last Updated on STN: 20001005

Entered Medline: 20000925

AB The **OX2** membrane glycoprotein (**CD200**) is expressed on a broad range of tissues including lymphoid cells, neurons, and endothelium. We report the characterization of an **OX2** receptor (**OX2R**) that is a novel protein restricted to cells of the myeloid lineage.

OX2 and its receptor are both cell surface glycoproteins containing two immunoglobulin-like domains and interact with a dissociation constant of 2.5 microM and koff 0.8 s(-1), typical of many leukocyte protein membrane interactions. Pervanadate treatment of **macrophages** showed that **OX2R** could be phosphorylated on tyrosine residues. Blockade of the **OX2-OX2R** interaction with an **OX2R** mAb exacerbated the disease model experimental allergic encephalomyelitis. These data, together with data from an **OX2**-deficient mouse (R. M. Hoek et al., submitted), suggest that myeloid function can be controlled in a tissue-specific manner by the **OX2-OX2R** interaction.

L4 ANSWER 24 OF 64 MEDLINE

ACCESSION NUMBER: 1999351723 MEDLINE

DOCUMENT NUMBER: 99351723 PubMed ID: 10424437

TITLE: Preparation and functional properties of monoclonal antibodies to human, mouse and rat **OX-2**

AUTHOR: Ragheb R; Abrahams S; Beecroft R; Hu J; Ni J; Ramakrishna V; Yu G; Gorczynski R M

CORPORATE SOURCE: Transplant Research Division, The Toronto Hospital, ON, Canada.

SOURCE: IMMUNOLOGY LETTERS, (1999 Jun 1) 68 (2-3) 311-5.
Journal code: 7910006. ISSN: 0165-2478.

PUB. COUNTRY: Netherlands

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 199909

ENTRY DATE: Entered STN: 19990925

Last Updated on STN: 19990925

Entered Medline: 19990916

AB We have prepared mouse and rat hybridomas to a 43-kDa molecule expressed in the thymus, on a subpopulation of **dendritic** cells, and in the brain, in mammalian tissue derived from mouse, rat and human. Using CHO cells transiently transfected with adenovirus vector(s) expressing a cDNA construct for the relevant **OX-2** gene, we show these monoclonal antibodies (Mabs) detect a molecule encoded by this construct (rat **OX-2** (rOX-2), mouse **OX-2** (mOX-2) and human **OX-2** (huOX-2), respectively).

Furthermore, at least some of the anti-rat Mabs detect determinants expressed on the murine **OX-2** molecule, as we predicted in an earlier publication. Previous studies have implied that this molecule might serve an important role in regulation of cell signaling

for

cytokine production. Using one-way mixed leukocyte reactions we show that when cells are cultured in the presence of the species-specific Mab, cytokine production becomes polarized 'away from' type-2 cytokine production, with preferentially increased expression of type-1 cytokine production.

L4 ANSWER 25 OF 64 MEDLINE

ACCESSION NUMBER: 1999343781 MEDLINE

DOCUMENT NUMBER: 99343781 PubMed ID: 10415071

TITLE: An immunoadhesin incorporating the molecule **OX-2** is a potent immunosuppressant that prolongs allo- and xenograft survival.

AUTHOR: Gorczynski R M; Cattral M S; Chen Z; Hu J; Lei J; Min W P; Yu G; Ni J

CORPORATE SOURCE: Transplant Research Division, The Toronto Hospital,

SOURCE: Canada.. rgorczynski@transplantunit.org
JOURNAL OF IMMUNOLOGY, (1999 Aug 1) 163 (3)
1654-60.
Journal code: 2985117R. ISSN: 0022-1767.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199908
ENTRY DATE: Entered STN: 19990820
Last Updated on STN: 19990820
Entered Medline: 19990812

AB We have established that, in mice receiving donor-specific immunization
by the portal vein, the increased graft survival seen is associated with the
increased expression of a molecule (OX-2) on a
subpopulation of **dendritic** cells (DC), and polarization of
cytokine production to type 2 cytokines on Ag-specific restimulation of
cells from these mice. Furthermore, infusion of a mAb to OX-
2 blocks both the increased graft survival and the altered
cytokine production seen. We have constructed an immunoadhesin in which
the extracellular domain of OX-2 is linked to the
murine IgG2a Fc region, and we have expressed this molecule (OX-
2:Fc) in a eukaryotic (baculovirus) expression system. Incubation
of **lymphocytes** with 50 ng/ml OX-2:Fc
inhibits a primary mixed **lymphocyte** reaction in vitro, as
assayed by proliferation and induction of cytotoxic T cells, and also
alters cytokine production with decreased IL-2 (IFN-gamma) production and
increased IL-4 (IL-10) production. Similarly, in vivo infusion of
OX-2:Fc promotes increased allo- and xenograft (both
skin and renal grafts) survival and decreases the Ab response to sheep
erythrocytes. Our data suggest this molecule might have clinical
importance in allo- and xenotransplantation.

L4 ANSWER 26 OF 64 MEDLINE
 ACCESSION NUMBER: 1999113736 MEDLINE
 DOCUMENT NUMBER: 99113736 PubMed ID: 9916698
 TITLE: Evidence that an OX-2-positive cell can inhibit the stimulation of type 1 cytokine production by bone marrow-derived B7-1 (and B7-2)-positive dendritic cells.
 AUTHOR: Gorczynski L; Chen Z; Hu J; Kai Y; Lei J; Ramakrishna V; Gorczynski R M
 CORPORATE SOURCE: Transplant Research Division, Toronto Hospital, Ontario, Canada.
 SOURCE: JOURNAL OF IMMUNOLOGY, (1999 Jan 15) 162 (2) 774-81.
 Journal code: 2985117R. ISSN: 0022-1767.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals; AIDS
 ENTRY MONTH: 199902
 ENTRY DATE: Entered STN: 19990223
 Last Updated on STN: 19990223
 Entered Medline: 19990208

AB We reported that hepatic mononuclear, nonparenchymal cells (NPC) can inhibit the immune response seen when allogeneic C57BL/6 dendritic cells (DC) are incubated with C3H spleen responder cells. Cells derived from these cultures transfer increased survival of C57BL/6 renal allografts in C3H mice. We also found that increased expression of OX-2 on DC was associated with inhibition of cytokine production and renal allograft rejection. We explored whether inhibition by hepatic NPC was a function of OX-2 expression by these cells. Fresh C57BL/6 spleen-derived DC were cultured with C3H spleen responder cells and other putative coregulatory cells. The latter were derived from fresh C3H or C57BL/6 liver NPC, or from C3H or C57BL/6 mice treated for 10 days by i.v. infusion of human Flt3 ligand. Different populations of murine bone marrow-derived DC from cultures of bone marrow with IL-4 plus granulocyte-macrophage-CSF were also used as a source of putative regulator cells. Supernatants of all stimulated cultures were examined for functional expression of different cytokines (IL-2, IL-4, IFN-gamma, and TGFbeta). We found that fresh C57BL/6 splenic DC induced IL-2, not IL-4, production. Cells from the sources indicated inhibited IL-2 and IFN-gamma production and promoted IL-4 and TGFbeta production. Inhibition was associated with increased expression of OX-2 on these cells, as defined by semiquantitative PCR and FACS analysis. By size fractionation, cells expressing OX-2 were a subpopulation of NLDC145+ cells. Our data imply a role for cells expressing OX-2 in the regulation of induction of cytokine production by conventional allostimulatory DC.

L4 ANSWER 32 OF 64 MEDLINE
 ACCESSION NUMBER: 97289561 MEDLINE
 DOCUMENT NUMBER: 97289561 PubMed ID: 9144466
 TITLE: MRC OX-2 defines a novel T cell costimulatory pathway.
 AUTHOR: Borriello F; Lederer J; Scott S; Sharpe A H
 CORPORATE SOURCE: Department of Pathology, Brigham and Women's Hospital and Harvard Medical School, Boston, MA 02115, USA..
 frank@mbcrr.harvard.edu
 SOURCE: JOURNAL OF IMMUNOLOGY, (1997 May 15) 158 (10) 4548-54.

Journal code: 2985117R. ISSN: 0022-1767.

PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199706
ENTRY DATE: Entered STN: 19970612
Last Updated on STN: 19970612
Entered Medline: 19970602

AB T cell activation requires the engagement of the TCR as well as a second, costimulatory signal. In this study, we demonstrate that **MRC OX-2 (OX-2)** mediates a previously unrecognized T cell costimulatory signal leading to enhanced T cell proliferation. One extensively studied costimulatory pathway, the B7/CD28 pathway, delivers its signal when CD28 is engaged by either of two ligands, B7-1 or B7-2, expressed on APC. Recent data have suggested that an additional ligand may exist in this pathway. This possibility prompted us to search previously cloned genes with both structural and expression characteristics similar to B7-1 and B7-2. Our search yielded **OX-2**, a rat **lymphocyte** activation marker, as a promising candidate gene. We now report that Chinese hamster ovary cell transfectants expressing the **OX-2** protein can costimulate murine CD4+ T cells to proliferate in an Ag-independent fashion using anti-CD3, as well as an Ag-dependent fashion using peptide. In contrast to B7-1-mediated costimulation, **OX-2** does not result in detectable levels of IL-2, IL-4, or IFN-gamma. In addition, **OX-2** transfectants do not bind the soluble receptor reagents of the B7/CD28 pathway (CD28-Ig and CTLA4Ig). Furthermore, **OX-2** costimulation is not inhibited by CTLA4Ig, as is B7-1-mediated costimulation, but is readily inhibited with an anti-**OX-2** mAb. Thus, **OX-2** is a T cell costimulatory ligand that acts through a non-B7/CD28 pathway, which leads to functionally distinct consequences, as reflected by the resulting cytokine profile.

L4 ANSWER 34 OF 64 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:906505 CAPLUS
DOCUMENT NUMBER: 138:12292
TITLE: Cloning and characterization of mouse **CD200** receptor variants, and therapeutic use thereof in modulating immune response in animal transplantation and immune diseases
INVENTOR(S): Gorczynski, Reginald M.; Marsden, Philip
PATENT ASSIGNEE(S): Transplantation Technologies Inc., Can.
SOURCE: PCT Int. Appl., 189 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002095030	A2	20021128	WO 2002-CA734	20020524 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU,				

TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
 CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
 BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
 PRIORITY APPLN. INFO.: US 2001-292950P P 20010524
 US 2002-369862P P 20020405

AB The present invention relates to **CD200** receptor isoforms and modulators thereof and their use in methods of immune modulation and pharmaceutical compns. In particular, protein and cDNA sequences for three isoforms of the murine **CD200** receptor called **CD200R2a**, **CD200R2b** and **CD200R3a** are provided. The inventors have also prepd. antibodies to the different isoforms of **CD200R**. Studies of using **CD200R** antibodies, co-administering the **CD200** receptor with a **CD200** peptide, preferably in the form of a sol. fusion protein, such as **CD200:Fc**, to modulate immune response are presented. The inventors have also shown that administering antibody fragments [e.g. Fab or F(ab')₂ fragments] that bind to a **CD200** receptor inhibits the immune suppression caused by **CD200**. Accordingly, in another aspect, the present invention provides a method of inhibiting immune suppression by administering an effective amt. of a **CD200** receptor antagonist to a cell or animal in need thereof. Preferably, the antagonist is an agent that inhibits the interaction of the **CD200** receptor with **CD200**.

L4 ANSWER 35 OF 64 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 2002:849661 CAPLUS
 DOCUMENT NUMBER: 137:347560
 TITLE: Protein and cDNA sequence of human and mouse cytokine **ox2** receptors
 INVENTOR(S): Van der Vuurst de Vries, Anne-Renee; Galibert, Laurent
 J.
 PATENT ASSIGNEE(S): Immunex Corporation, USA
 SOURCE: PCT Int. Appl., 64 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002088164	A1	20021107	WO 2002-US13087	20020425 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRIORITY APPLN. INFO.: US 2001-286686P P 20010426
 AB The invention relates to protein and cDNA sequence of human and mouse cytokine **ox2** receptors. **Ox2** is a transmembrane protein, designated as human leukocyte antigen **CD200**. The receptors are also useful in screening for inhibitors or agonists thereof.
 The invention further relates to prepn. of antibody for **ox2**

receptor.
REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

L4 ANSWER 38 OF 64 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:122819 CAPLUS
DOCUMENT NUMBER: 136:177960
TITLE: Methods and compositions for modulating tumor growth
by inhibiting OX-2
INVENTOR(S): Gorczynski, Reginald M.; Clark, David A.
PATENT ASSIGNEE(S): Can.
SOURCE: PCT Int. Appl., 56 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002011762	A2	20020214	WO 2001-CA1111	20010730 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2001078338	A5	20020218	AU 2001-78338	20010730 <--
PRIORITY APPLN. INFO.: US 2000-222725P P 20000803 WO 2001-CA1111 W 20010730				
AB Methods and compns. for regulating tumor growth are disclosed. For reducing tumor growth, agents that inhibit OX-2 (CD200) are administered. Such methods are useful in treating cancer. For enhancing tumor growth, an OX-2 protein or a nucleic acid encoding an OX-2 protein is administered. Such methods are useful in studying cancer and/or tumor metastasis.				

L4 ANSWER 40 OF 64 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:693368 CAPLUS
DOCUMENT NUMBER: 135:267229
TITLE: Methods and compositions for immunoregulation
INVENTOR(S): Gorczynski, Reginald M.; Clark, David A.
PATENT ASSIGNEE(S): Can.
SOURCE: PCT Int. Appl., 83 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001068697	A2	20010920	WO 2001-CA346	20010316 <--
WO 2001068697	A3	20020510		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,				

CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM,
 HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,
 LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO,
 RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ,
 VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
 BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
 EP 1263786 A2 20021211 EP 2001-914889 20010316 <--
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
 PRIORITY APPLN. INFO.: US 2000-189986P P 20000317
 WO 2001-CA346 W 20010316
 AB Methods and compns. for inducing immune suppression are disclosed. The
 methods involve administering an effective amt. of an agent that inhibits
 MD-1 with or without an OX-2 protein or a nucleic acid
 encoding an OX-2 protein. The methods are useful in
 preventing graft rejection, fetal loss, autoimmune disease, and
 allergies.
 Methods and compns. for preventing immune suppression are also disclosed.
 The methods involve administering an effective amt. of MD-1 or an agent
 that activates or stimulates MD-1.
 L4 ANSWER 41 OF 64 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 2001:687850 CAPLUS
 DOCUMENT NUMBER: 136:245923
 TITLE: Does successful allopregnancy mimic transplantation
 tolerance?
 AUTHOR(S): Gorczynski, Reginald M.; Yu, Gary; Clark, David A.
 CORPORATE SOURCE: RM CCRW-2-855, Toronto Hospital, Toronto, ON, M5G2C4,
 Can.
 SOURCE: Graft (Thousand Oaks, CA, United States) (2001
), 4(5), 338-345
 CODEN: GTOCA5; ISSN: 1522-1628
 PUBLISHER: Sage Science Press
 DOCUMENT TYPE: Journal; General Review
 LANGUAGE: English
 AB A review. The dendritic-cell assocd. mol. CD200 is
 up-regulated in rodent transplantation models where successful inhibition
 of rejection is accomplished. The mechanism by which CD200
 achieves this effect involves signaling a receptor, CD200r, on
 macrophages and/or .gamma..delta.TCR+ cells, both of which have
 been implicated in adoptive transfer of tolerance. In addn. to
 inhibition
 of rejection, increased expression of CD200 is assocd. with
 altered polarization in cytokine prodn., with increased expression of
 IL-4, IL-10 and TGF.beta., and decreased IL-2, IFN.gamma. and
 TNF-.alpha..
 Inhibition of rejection can thus be adoptively transferred by
 IL-10/TGF.beta. and a CD200 immunoadhesin and in turn can be
 inhibited by neutralizing these cytokines or by functional blockade of
 CD200 expression. Successful pregnancy in allopregnant mice can
 also be viewed as dependent upon control of graft rejection.
 Proinflammatory Th1 cytokines (TNF-.alpha. + IFN-.gamma. + IL-1) can
 cause
 spontaneous abortion in mice by a mechanism which involves a novel
 prothrombinase, fgl2, which promotes fibrin deposition. However, we
 found
 that spontaneous abortion rates in abortion-prone CBA .times. DBA/2
 matings and in low abortion rate CBA .times. BALB/c matings were lower

than the frequency of implantation sites showing fibrinhi + fgl2 mRNAhi. CD200 expression was present in the same sites as fgl2 mRNA, and neutralization of this CD200 expression by anti-CD200 antibody raised the abortion rate to predicted levels. Conversely, a CD200 immunoadhesin dramatically reduced the abortion rate. We hypothesize that in addn. to its role in organ and tissue allograft rejection, CD200 expression is involved in the prevention of spontaneous abortion triggered by cytokine up-regulation of fgl2 at the feto-maternal interface.

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L4 ANSWER 44 OF 64 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:741947 CAPLUS

DOCUMENT NUMBER: 133:291146

TITLE: Novel uses of mammalian OX2 protein and related reagents

INVENTOR(S): Hoek, Robert M.; Sedgwick, Jonathan D.

PATENT ASSIGNEE(S): Schering Corporation, USA

SOURCE: PCT Int. Appl., 20 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000061171	A2	20001019	WO 2000-US9719	20000412 <--
WO 2000061171	A3	20010125		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, HR, HU, ID, IL, IN, IS, JP, KG, KR, KZ, LC, LK, LR, LT, LU, LV, MA, MD, MG, MK, MN, MX, NO, NZ, PL, PT, RO, RU, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
EP 1171154	A2	20020116	EP 2000-923257	20000412 <--
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
JP 2002541210	T2	20021203	JP 2000-610503	20000412 <--
US 2002192215	A1	20021219	US 2002-86972	20020301 <--
PRIORITY APPLN. INFO.:			US 1999-129124P	P 19990413
			US 1999-290825	A 19990413
			US 2000-547432	B3 20000412
			WO 2000-US9719	W 20000412
AB	Compns. and methods for using mammalian ligand OX2 to treat an abnormal physiol. condition in an individual. The methods comprise administering a therapeutically effective amt. of OX2 alone, or in combination with other therapeutic reagents; or an OX2 antagonist.			

L4 ANSWER 47 OF 64 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:511666 CAPLUS

DOCUMENT NUMBER: 127:120710

TITLE: T cell-mediated immune response modulation by OX-2 costimulatory molecule and its

agonists and antagonists
 INVENTOR(S): Borriello, Francescopaolo; Sharpe, Arlene H.
 PATENT ASSIGNEE(S): Brigham and Women's Hospital, Inc., USA
 SOURCE: PCT Int. Appl., 93 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9721450	A1	19970619	WO 1996-US19189	19961127 <--
W: AU, CA, JP				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,				
SE				
AU 9711440	A1	19970703	AU 1997-11440	19961127 <--
PRIORITY APPLN. INFO.:			US 1995-8754P	P 19951208
			WO 1996-US19189	W 19961127

AB Methods and compns. for using the OX-2 protein to modulate a T cell-mediated immune response are described. Novel structure forms of OX-2 T cell costimulatory mols. are described. These structural forms comprise a novel structure domain or have a structural domain deleted. The structural forms correspond to naturally-occurring alternatively-spliced forms of OX-2 T cell costimulatory mols. or variants thereof which can be produced by std. recombinant DNA techniques. The novel structure forms of the OX-2 T cell costimulatory mols. can be used to identify agents which stimulate the expression of alternative forms of costimulatory mols. and to identify components of the signal transduction pathway which results in costimulation of T cells.

L4 ANSWER 48 OF 64 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V.
 ACCESSION NUMBER: 1999097997 EMBASE
 TITLE: Anti-rat OX-2 blocks increased small intestinal transplant survival after portal vein immunization.
 AUTHOR: Gorczynski R.M.; Cohen Z.; Fu X.M.; Lei J.
 CORPORATE SOURCE: Dr. R.M. Gorczynski, Toronto Hospital, Transplant Research CCRW-2-855, Toronto, Ont. M5G 2CH, Canada
 SOURCE: Transplantation Proceedings, (1999) 31/1-2 (577).
 Refs: 8
 ISSN: 0041-1345 CODEN: TRPPA8
 PUBLISHER IDENT.: S 0041-1345(98)01563-2
 COUNTRY: United States
 DOCUMENT TYPE: Journal; Conference Article
 FILE SEGMENT: 026 Immunology, Serology and Transplantation
 048 Gastroenterology
 LANGUAGE: English

L4 ANSWER 51 OF 64 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
 ACCESSION NUMBER: 2002:370418 BIOSIS
 DOCUMENT NUMBER: PREV200200370418
 TITLE: Regulatory role of CD200 on dendritic cells.
 AUTHOR(S): Diao, Jun (1); Gorczynski, Reginald; Cattral, Mark (1)
 CORPORATE SOURCE: (1) Surgery, University of Toronto, 200 Elizabeth St., Toronto, ON, M5G 2C4 Canada
 SOURCE: FASEB Journal, (March 22, 2002) Vol. 16, No. 5,

pp. A1032. <http://www.fasebj.org/>. print.
Meeting Info.: Annual Meeting of Professional Research
Scientists on Experimental Biology New Orleans, Louisiana,
USA April 20-24, 2002
ISSN: 0892-6638.

DOCUMENT TYPE: Conference
LANGUAGE: English

AB Regulatory role of **CD200** on **dendritic** cells
CD200, formerly known as **OX-2**, is a
glycoprotein expressed on a variety of lymphoid and neuronal cells and
tissues; the expression of **CD200** receptor is limited to
myeloid-derived cells, particularly **macrophages** and
dendritic cells (DCs). Recent studies suggest that **CD200**
might act as an inhibitor for myeloid activation, and play a role in
autoimmunity and transplantation rejection. We investigated the effect of
increased expression of **CD200** in mouse bone marrow-derived DCs.
DCs were transduced with an adenovirus vector encoding the **CD200**
gene (Ad5CD200). Transduction efficiency was vector-dose dependent;
70-80%

DCs were transduced at a multiplicity of infection of 500, as judged by
flow cytometry. Untransduced DCs expressed low levels of **CD200**.
Exposure of DC to Ad5CD200 or control adenovirus vector (Ad5-ctr) was
associated with increased expression of the costimulatory molecules CD40
and CD86, as compared to non-treated DCs. The expression of **CD200**
remained stable following Ad5-ctr exposure. DCs expressing high levels of
CD200 had a significantly reduced stimulatory capacity in mixed
allogeneic **lymphocyte** cultures, despite increased costimulatory
molecule expression. Our data suggests that increased expression of
CD200 may promote the tolerogenic capacity of DCs.

L4 ANSWER 52 OF 64 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 2001:557960 BIOSIS
DOCUMENT NUMBER: PREV200100557960
TITLE: Role of **CD200**:CD200r interactions in regulating
islet xenograft rejection.
AUTHOR(S): Gorczynski, R. (1); Hu, J. (1); Kai, Y. (1); Wong, A. (1);
Lei, J. (1)
CORPORATE SOURCE: (1) Toronto Hospital, Toronto Canada
SOURCE: Xenotransplantation, (**August, 2001**) Vol. 8, No.
Supplement 1, pp. 79. print.
Meeting Info.: VI Congress of the International
Xenotransplantation Association Chicago, Illinois, USA
September 29-October 03, 2001
ISSN: 0908-665X.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English

L4 ANSWER 57 OF 64 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 2001:82960 BIOSIS
DOCUMENT NUMBER: PREV200100082960
TITLE: Viral homologues of cell surface proteins **OX2** and
CD47 have potential to regulate **macrophage**
function.
AUTHOR(S): Wright, G. J. (1); Vernon-Wilson, Elizabeth (1); Foster,
Mildred (1); Brown, M. H. (1); Barclay, A. N. (1)
CORPORATE SOURCE: (1) Sir William Dunn School of Pathology, University of
Oxford, Oxford, OX1 3RE UK
SOURCE: Immunology, (**December, 2000**) Vol. 101, No.
Supplement 1, pp. 50. print.

Meeting Info.: Annual Congress of the British Society for Immunology Harrogate, UK December 05-08, 2000 British Society for Immunology
. ISSN: 0019-2805.

DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English

L4 ANSWER 58 OF 64 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2001:82882 BIOSIS
DOCUMENT NUMBER: PREV200100082882
TITLE: Interactions of cytoplasmic region of OX2R are consistent with an inhibitory function.
AUTHOR(S): Hutchings, N. J. (1); Brooke, G. (1); Chalkley, R.; Wright, G. J. (1); Brown, M. H. (1); Barclay, A. N. (1)
CORPORATE SOURCE: (1) Sir William Dunn School of Pathology, University of Oxford, Oxford, OX1 3RE UK
SOURCE: Immunology, (December, 2000) Vol. 101, No. Supplement 1, pp. 24. print.
Meeting Info.: Annual Congress of the British Society for Immunology Harrogate, UK December 05-08, 2000 British Society for Immunology
. ISSN: 0019-2805.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English

L4 ANSWER 63 OF 64 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1999:164806 BIOSIS
DOCUMENT NUMBER: PREV199900164806
TITLE: The lymphoid/neuronal OX2 antigen bind a novel **macrophage** cell surface protein.
AUTHOR(S): Wright, Gavin J.; Barclay, A. Neil; Brown, Marion H.
CORPORATE SOURCE: MRC CIU, Sir William Dunn Sch. Pathology, South Parks Road, Oxford OX1 3RE UK
SOURCE: Immunology, (Dec., 1998) Vol. 95, No. SUPPL. 1, pp. 45.
Meeting Info.: 6th Annual Congress of the British Society for Immunology Harrogate, England, UK December 1-4, 1998
ISSN: 0019-2805.
DOCUMENT TYPE: Conference
LANGUAGE: English

L4 ANSWER 64 OF 64 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1997:102745 BIOSIS
DOCUMENT NUMBER: PREV199799401948
TITLE: Expression of a ligand for the immunoglobulin superfamily (IgSF) protein, MRC OX2 in both the immune and nervous systems.
AUTHOR(S): Preston, Sandy; Brown, Marion H.; Barclay, A. Neil
CORPORATE SOURCE: MRC Cellular Immunology Unit, Sir William Dunn Sch. Pathol., Oxford OX1 3RE UK
SOURCE: Immunology, (1996) Vol. 89, No. SUPPL. 1, pp. 31.
Meeting Info.: Joint Congress of the British Society for Immunology and the Biochemical Society Harrogate, England, UK December 10-13, 1996
ISSN: 0019-2805.
DOCUMENT TYPE: Conference; Abstract; Conference

LANGUAGE:

English